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Date: October 17, 2002

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PATENT
36856.478

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Takashi IWAMOTO et al.

Serial No.: 09/847,989

Filed: May 3, 2001

Title: SURFACE ACOUSTIC WAVE DEVICE

Art Unit: 2834

Examiner: P. Cuevas

REQUEST FOR RECONSIDERATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated July 17, 2002, please reconsider the above-identified application in view of the following remarks.

Claims 1-15 are pending in this application.

Claims 1 and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by Fujimoto et al. (U.S. 6,088,462). In addition, claims 2-6, 8 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujimoto et al. in view of common knowledge in the art. Claims 10-12 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujimoto et al. in view of Morishita et al. (U.S. 4,425,554). And finally, claims 13 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujimoto et al. in view of Morishita et al., and further in view of common knowledge in the art. Applicants respectfully traverse these rejections.

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Reconsider.
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Claim 1 recites:

"A surface acoustic wave device utilizing a sheer horizontal wave, comprising:
a piezoelectric substrate; and
an interdigital transducer provided on the piezoelectric substrate, the interdigital transducer including at least three metal layers containing at least one first layer made of a metal with a density of about 15 g/cm^3 or more as a major component and at least one second layer made of a metal with a density of about 12 g/cm^3 or less, **the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer.**" (Emphasis added)

In the claimed invention, a ratio of high density material to low density material is significant in order to minimize dispersions in the center frequency which maintaining excellent characteristics. When the ratio is outside of the claimed range (20% to 95%), ripples or spurious components occur within the passband or in the vicinity of the passband. High density material is used to obtain outstanding characteristics (e.g., improved width of the passband and low insertion loss), and low density material is used to minimize dispersions of the center frequency. It is necessary to provide at least 5% of the low density material in order to minimize the dispersions of the center frequency, and to provide at least 20% of the high density material to obtain outstanding characteristic.

The Examiner alleged that Fujimoto et al. teaches all of the features recited in claim 1, including "the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer". Applicants respectfully disagree.

Contrary to the Examiner's allegations and the present claimed invention, Fujimoto et al. fails to teach or suggest any specific volumes of the first and second layers, and certainly fails to teach or suggest "the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer" as recited in the present claimed invention. In fact, Fujimoto et al. teaches nothing more than that "the interdigital transducer 5 may be made of substantially only tungsten or tantalum or made of an alloy mainly consisting of tungsten or tantalum. The interdigital

transducer 5 may have a multilayer structure including at least one tungsten or tantalum layer and a layer of another material such as aluminum" (see col. 6, lines 41-46).

Furthermore, there is absolutely no teaching or suggestion in Fujimoto et al. that the volume of the materials defining the interdigital transducer is important to the function of the surface acoustic wave device, and there is certainly no teaching or suggestion in Fujimoto that the volume of the first layer should be in the range from about 20% to about 95% of the overall volume of the interdigital transducer. In fact, Fujimoto et al. fails to teach or suggest that the volume of the high and low density materials (first and second layers) could or should be maintained within a specific range in order to greatly improve the performance of the surface acoustic wave device. In fact, Fujimoto et al. completely fails to recognize the importance of any relationship or ratio between the volume of the high and low density materials.

Prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). Pursuant to MPEP 706.02(a), the Examiner is hereby requested to cite a reference in support of his position that it was well known at the time of Applicants' invention to provide first and second layers such that "the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer" as recited in claim 1 of the present application. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. §1.107(b).

Regarding claims 8 and 9, the Examiner alleged that it would have been obvious to provide a layer containing Au as a major component having a volume from about 40% to about 80% of the overall volume, and to provide a layer containing Ni as a major component having a volume of from about 20% to about 60% of the overall volume, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Applicants respectfully disagree.

The U.S. Patent Office Board of Patent Appeals and Interferences has concluded

that a rejection on this basis is clearly improper. See In re Garrett, (BPAI Dec. 30, 1986), wherein in reversing an obviousness rejection, the Board criticized that the Examiner's statement that the proposed modification would have been an obvious matter of engineering design choice with the explanation that such an assertion is a conclusion, not a reason.

The PTO has the burden under 35 U.S.C. §103 to establish a prima facie case of obviousness. See In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1984). This it has not done. The Examiner failed to cite prior art that remedies the deficiencies of Fujimoto et al which suggests the obviousness of modifying Fujimoto et al. to achieve Applicant's claimed invention.

Instead, the Examiner improperly relied upon hindsight reconstruction of the claimed invention in reaching his obviousness determination. To imbue one of ordinary skill in the art with knowledge of the invention, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1543, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Morishita et al. is relied upon merely to teach reflectors arranged on both sides of the IDT, and certainly fails to teach or suggest "the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer" as recited in the present claimed invention.

Accordingly, Applicants respectfully submit that Fujimoto et al. and Morishita et al., taken individually or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claim 1 of the present application.

In view of the foregoing remarks, Applicants respectfully submit that claim 1 is allowable. Claims 2-15 depend upon claim 1, and are therefore allowable for at least

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the reasons that claim 1 is allowable.

In view of the foregoing remarks, Applicants respectfully submit that this Application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: October 17, 2002


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